APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/902,124	07/10/2001	Faisal Ishtiaq	CR00266M	7998

22917 7590 12/21/2004		EXAMINER
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ART UNIT	PAPER NUMBER
2613	

IL01/3RD
SCHAUMBURG, IL 60196

DATE MAILED: 12/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/902,124	ISHTIAQ ET AL.
	Examiner	Art Unit
	Tung T. Vo	2613

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>03</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>07/01/2004</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-7,9,11-18 and 20-32</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-7, 9, 11-18, 20-32</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

U.S. Patent and Trademark Office

PTOL-326 (Rev. 1-04)   Office Action Summary   Part of Paper No./Mail Date 20041209

DETAILED ACTION

Claim Rejections - 35 USC § 112

1.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2.   Claims 1, 9, and 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply

with the written description requirement. The claim(s) contains subject matter which was not

described in the specification in such a way as to reasonably convey to one skilled in the relevant

art that the inventor(s), at the time the application was filed, had possession of the claimed

invention.

It is noted that the specification of the present invention serial number 09/902,124

discloses in the preferred embodiment that if any average SAD values exceeds its threshold, the

macroblock is labeled as being erroneous or suspicious (714, 716, and 718 of fig. 7). There is no

disclosure to describe that one or more sum absolute differences is greater than the threshold

level as claimed. Appropriation correction is required.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4.   Claims 1-6, 9, 11-13, 16-18, 20-24, and 26-31 are rejected under 35 U.S.C. 102(3) as

being anticipated by Isu et al. (US 6,697,433 B1) as best understand.

Re claims 1, 9, 18 and 26, Isu discloses a system (figure 2) that can be integrated in a

computer for carrying out the method of decoding a digital video signal comprising a sequence

of image frames, each image frame comprising a sequence of image slices, each image slice

comprising a sequence of macroblocks and each macroblock comprising a plurality of pixels

(figure 1, e.g. showing MPEG-4 standard, col. 6, line 55 through col. 7, line 10), said system

comprising: an input for receiving said digital video signal (101 of fig. 2); an image frame

store, a memory, for storing a previous image frame (3 of fig. 2); a macroblock decoder, a

digital signal processor (1 of fig. 2), coupled to the input that receives said digital video signal

and to said image frame store; and an error detector, an application specific integrated circuit (8

of fig. 1), coupled to the macroblock decoder, wherein said error detector is operable to

calculate one or more sum of absolute differences between pixel values of the plurality of pixels

(col. 15, lines 1-60, e.g. the pixel average pixel values are considered as pixel values of the

plurality pixels) along one ore more edges of the maroblock and the pixel values on at least part

of a boundary between a current macroblock and one or more adjoining macroblocks (BLOCK

(m-1, n), BLOCK (m, n), BLOCK (M, n-1) of fig. 10) and to label the current macroblock as

suspicious if the one or more sum of absolute differences is greater than a threshold level which

is a weighted average sum absolute difference from one or more previous images, frames, or

pictures (Cm,n>TH2, ST24 of fig. 9, e.g. labeling erroneous or suspicious is a judging process

to determine the error of the picture or image or picture).

Re claim 11, Isu further discloses wherein said macroblock <u>decoder</u> comprises:

a demultiplexer (1 of fig. 2) coupled to the input that receives said digital video signal and configured to output compressed, quantized coefficient data and compressed motion vector data;

an inverse variable-length coder (1 of fig. 2) coupled to said demultiplexer and configured to output quantized coefficient data and motion vector data;

an inverse quantizer (5 of fig. 2) coupled to said inverse variable-length coder and configured to receive said quantized coefficient data and generate coefficient data;

an inverse discrete cosine transformer (6 of fig. 1) coupled to the inverse quantizer and configured to receive said coefficient data and generate a differential macroblock;

a motion compensator (2 of fig. 2) coupled to said inverse variable-length coder and configured to receive said motion vector data and a previous image frame and generate a previous motion compensated macroblock; and

a signal combiner (7 of fig. 2) configured to combine said previous motion compensated macroblock and said differential macroblock to produce a decoded macroblock.

Re claim12, Isu further discloses further comprising an error concealment element (10 of fig. 2) coupled to said error detector and said image frame store.

Re claim 13, Isu further discloses wherein said error concealment element operates to regenerate any subsequent macroblocks in an image slice if the current macroblock is labeled as suspicious (ST 24, ST26 of fig. 9).

Re claims 2, 16, 20, and 27, Isu further discloses wherein the pixel values are one or more channel components, wherein the one or more sum of absolute differences between the

pixel values is calculated for one or more of the one or more channel components (col. 6, lines 55 through col. 7, line 10; figs. 5 and 9, e.g. ST24).

Re claims 3-4, 17, 21-22, and 28-29, Isu further discloses wherein a macro-block is labeled as suspicious if any of the one or more sum of absolute differences between the pixel values is greater than the threshold level in one or more corresponding components of the one or more channel components from one or more previous image frames (ST 44 of fig. 15).

Re claims 6, 23, and 30, Isu further discloses wherein the threshold level is a weighted average of the one or more sum of absolute differences between pixel values along macroblock boundaries in at least one previous image frame (TH of fig. 9, e.g. note error detection (8 of fig. 2) detects the error partial image region according to a difference between the average of the first pixel levels and the average of each group of second pixel levels and a prescribed threshold value relating to the differences, means is a weighted average of the error metrics).

Re claims 5, 24 and 31, Isu further discloses regenerating all remaining macroblocks in accordance with a concealment strategy if a macroblock is labeled as suspicious (10 of fig. 2).

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 7, 14-15, 25, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Isu et al. (US 6,697,433 B1) in view Kuroda et al. (US 6,385,343).

Re claims 7, 14, 15, 25 and 32, Isu teaches all limitations except a syntax error detector,

which is operable to detect syntax errors in the digital video signal, coupled to the error

detector; wherein said error concealment element operates to regenerate any macroblocks in an

image slice of the sequence of image slices that follows a macroblock labeled suspicious if a

syntax error is detected by said syntax error detector as claimed.

However, Kuroda teaches a syntax error detector (1 of fig. 5), which is operable to detect

syntax errors in the digital video signal, coupled to the error detector; wherein said error

concealment element operates to regenerate any macroblocks in an image slice of the sequence

of image slices that follows a macroblock labeled suspicious if a syntax error is detected by said

syntax error detector. Therefore, taking the combined teachings of Isu and Kuroda as a whole, it

would have been obvious to one of ordinary skill in the art to incorporate the syntax error

detector (1 of fig. 5) into the system of Kuroda to perform the same purpose of detecting the

syntax error of a encoded bitstream before decoding. Doing so would be possible to avoid the

performance error detection by the error block detection means when reception conditions are

good and perform overall stable decoding operations as suggested by Kuroda (col. 7, lines 15-

20).

Response to Arguments

3.   Applicant's arguments filed 07/01/04 have been fully considered but they are not

persuasive.

The applicant argued that Isu does not suggests the use of individual pixel values to compute the SAD across the boundary, page 11 of the remarks.

The examiner respectfully disagrees with the applicant. It is submitted that Isu does disclose the SAD between the average pixel values that includes individual pixel values of the neighboring blocks, wherein the neighboring blocks include the boundaries (fig. 10; col. 15, lines 1-60), so when Isu computes the SAD of the average of pixel values that include the individual pixel values. It is noted that the computation of Isu will result in more accuracy of detecting errors of a digital video signal, the concept of detecting the errors of the digital video signal is the same as the claimed invention. Therefore, Isu meets the claimed features.

Conclusion

4.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung T. Vo whose telephone number is (703) 308-5874. The examiner can normally be reached on 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris. Kelley can be reached on (703) 305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tung T. Vo
Primary Examiner
Art Unit 2613

T.Vo.